27. (Once amended) A compound which binds to a DM2 protein, which compound comprises an amino acid motif comprising at least eight consecutive amino acids of the formula

R_1-X-F-X-R_2-R_3-W-X-X-R_4 (I) (SEQ ID NO: 4)

wherein

E2

R_1 is a proline (P), leucine (L), glutamic acid (E), cysteine (C) or glutamine (Q),

X stands for any natural amino acid,

R_2 is arginine (R), histidine (H), glutamic acid (E), cysteine (C), serine (S), or aspartic acid (D),

R_3 is histidine (H), phenylalanine (F) or tyrosine (Y),

R_4 is phenylalanine (F), glutamine (Q) or leucine (L); and

F is phenylalanine and W is tryptophan,

and inhibits the binding of said DM2 protein to a p53 protein.

Please add the following new claims:

28. The compound according to claim 27 wherein the compound binds to human DM2 (HDM2).

29. The compound according to claim 27 further comprising a biotin moiety coupled to the amino acid motif.

30. The compound according to claim 27 wherein the amino acid motif comprises a

E3

cyclic peptide.

31. The compound according to claim 27, wherein the amino acid motif comprises a cyclic lactam.

32. The compound according to claim 27 wherein the amino acid motif comprises a disulfide bond.

33. The compound according to claim 27 which comprises no more than fifteen amino acids (15 mers).

34. The compound according to claim 27 which comprises an amino acid motif selected from the group consisting of M-P-R-F-M-D-Y-W-E-G-L-N (SEQ ID NO: 6), Q-P-T-F-S-D-Y-W-K-L-L-P (SEQ ID NO: 7), and P-X-F-X-D-Y-W-X-X-L (SEQ ID NO: 8).

35. The compound according to claim 27, which comprises eight amino acids according to the formula

F-X2-R2-R3-W-X3-X4-R4 (Ib) (SEQ ID NO: 10)

wherein R2 is arginine (R), histidine (H), glutamic acid (E), cysteine (C), serine (S), or aspartic acid (D);

R3 is histidine (H), phenylalanine (F), or tyrosine (Y);

R4 is phenylalanine (F), gutamine (Q) or leucine (L);

X2 is methionine (M), isoleucine (I), threonine (T), arginine (R), alanine (A) or serine (S);

X3 is glutamic acid (E), threonine (T), alanine (A), phenylalanine (F) or serine (S); and

X4 is glycine (G), glutamine (Q), threonine (T), alanine (A) or aspartic acid (D).

36. The compound according to claim 27 comprising an amino acid motif of the formula

E3 cont

X1-F-X2-R2-R3-W-X3-X4-R4 (Ic) (SEQ ID NO: 11)

wherein

R2 is arginine (R), histidine (H), glutamic acid (E), cystine (C), serine (S), or aspartic acid (D);

R3 is histidine (H), phenylalanine (F) or tyrosine (Y);

R4 is phenylalanine (F), glutamine (Q) or leucine (L);

X1 is arginine (R), asparagine (N), alanine (A), threonine (T), or valine (V);

X2 is methionine (M), isoleucine (I), threonine (T), arginine (R), alanine (A), or serine (S);

X3 is glutamic acid (E), threonine (T), alanine (A), phenylalanine (F), or serine (S); and

X4 is glycine (G), glutamine (Q), threonine (T), alanine (A), or aspartic acid (D).

37. The compound according to claim 27 comprising an amino acid motif selected from the group consisting of: P-A-F-T-H-Y-W-P (SEQ ID NO: 12), P-T-F-S-D-Y-W-P (SEQ ID NO: 13), and P-R-F-D-Y-W-P (SEQ ID NO: 14).

38. The compound according to claim 27, wherein R2 is aspartic acid (D).

39. The compound according to claim 35, wherein at least one of R2, X2, X3, and X4 is defined as follows: R2 is aspartic acid (D), X2 is methionine (M), X3 is glutamic acid (E), and X4 is glycine (G).

40. The compound according to claim 36, wherein at least one of R2, X1, X2, X3, and X4 is defined as follows: R2 is aspartic acid (D), X1 is arginine (R), X2 is methionine (M), X3 is glutamic acid (E), and X4 is glycine (G).

41. A method for inhibiting the binding of a DM2 protein to a p53 protein comprising contacting said DM2 protein with a compound which compound comprises an amino acid motif comprising at least eight consecutive amino acids of the formula

R_1-X-F-X-R_2-R_3-W-X-X-R_4 (I) (SEQ ID NO: 4)

wherein

R_1 is a proline (P), leucine (L), glutamic acid (E), cysteine (C) or glutamine (Q),

X stands for any natural amino acid,

R_2 is arginine (R), histidine (H), glutamic acid (E), cysteine (C), serine (S), or aspartic acid (D),

R_3 is histidine (H), phenylalanine (F) or tyrosine (Y),

R_4 is phenylalanine (F), glutamine (Q) or leucine (L); and

F is phenylalanine and W is tryptophan,

and inhibits the binding of said DM2 protein to a p53 protein.

E3 cont

42. The method of claim 41 wherein R2 is aspartic acid (D).

43. A purification method comprising:

(a) contacting a compound comprising an amino acid motif comprising at least eight consecutive amino acids of the formula

R_1-X-F-X-R_2-R_3-W-X-X-R_4 (I) (SEQ ID NO: 4)

wherein

R_1 is a proline (P), leucine (L), glutamic acid (E), cysteine (C) or glutamine (Q),

X stands for any natural amino acid,

R_2 is arginine (R), histidine (H), glutamic acid (E), cysteine (C), serine (S), or aspartic acid (D),

R_3 is histidine (H), phenylalanine (F) or tyrosine (Y),

R_4 is phenylalanine (F), glutamine (Q) or leucine (L); and

F is phenylalanine and W is tryptophan,

and inhibits the binding of said DM2 protein to a p53 protein, with a binding partner of said compound; and

(b) purifying said binding partner.

44. The method of claim 43 wherein said binding partner is a DM2 protein.

45. The method of claim 44 wherein said binding partner is HDM2.

46. The method of claim 45 wherein R2 is aspartic acid (D).

47. A method of inducing growth arrest or apoptosis in a tumor cell wherein the cell contains wild-type p53 and non-elevated DM2 levels, comprising treating said tumor cell with a compound comprising an amino acid motif comprising at least eight consecutive amino acids of the formula

R_1-X-F-X-R_2-R_3-W-X-X-R_4 (I) (SEQ ID NO: 4)

wherein

R_1 is a proline (P), leucine (L), glutamic acid (E), cysteine (C) or glutamine (Q),

X stands for any natural amino acid,

R_2 is arginine (R), histidine (H), glutamic acid (E), cysteine (C), serine (S), or aspartic acid (D),

R_3 is histidine (H), phenylalanine (F) or tyrosine (Y),

E3 cont

R_4 is phenylalanine (F), glutamine (Q) or leucine (L); and

F is phenylalanine and W is tryptophan,

and inhibits the binding of said DM2 protein to a p53 protein.

48. The method of claim 47 wherein R2 is aspartic acid (D).

49. A method for inducing growth arrest or apoptosis in a tumor cell wherein the cell contains wild-type p53 and non-elevated DM2 levels, comprising treating said tumor cell with a DNA molecule which expresses a peptide which peptide comprises an amino acid motif comprising at least eight consecutive amino acids of the formula

R_1-X-F-X-R_2-R_3-W-X-X-R_4 (I) (SEQ ID NO: 4)

wherein

R_1 is a proline (P), leucine (L), glutamic acid (E), cysteine (C) or glutamine (Q),

X stands for any natural amino acid,

R_2 is arginine (R), histidine (H), glutamic acid (E), cysteine (C), serine (S), or aspartic acid (D),

R_3 is histidine (H), phenylalanine (F) or tyrosine (Y),

R_4 is phenylalanine (F), glutamine (Q) or leucine (L); and

F is phenylalanine and W is tryptophan,

and inhibits the binding of said DM2 protein to a p53 protein.

50. A method for diagnosis of leukemia or carcinoma, comprising

(a) contacting a blood sample or tissue sample taken from a patient with a compound which comprises an amino acid motif comprising at least eight consecutive amino acids of the formula

R_1-X-F-X-R_2-R_3-W-X-X-R_4 (I) (SEQ ID NO: 4)

wherein

R_1 is a proline (P), leucine (L), glutamic acid (E), cysteine (C) or glutamine (Q),

X stands for any natural amino acid,

R_2 is arginine (R), histidine (H), glutamic acid (E), cysteine (C), serine (S), or aspartic acid (D),

R_3 is histidine (H), phenylalanine (F) or tyrosine (Y),

R_4 is phenylalanine (F), glutamine (Q) or leucine (L); and

F is phenylalanine and W is tryptophan,

and inhibits the binding of said DM2 protein to a p53 protein, and

(b) measuring the level of DM2 in the sample.

51. The method of claim 50 wherein the patient is human, and DM2 is HDM2.

52. A composition comprising a compound, which compound comprises an amino acid motif comprising at least eight consecutive amino acids of the formula

R_1-X-F-X-R_2-R_3-W-X-X-R_4 (I) (SEQ ID NO: 4)

wherein

R_1 is a proline (P), leucine (L), glutamic acid (E), cysteine (C) or glutamine (Q),

X stands for any natural amino acid,

R_2 is arginine (R), histidine (H), glutamic acid (E), cysteine (C), serine (S), or aspartic acid (D),

R_3 is histidine (H), phenylalanine (F) or tyrosine (Y),

R_4 is phenylalanine (F), glutamine (Q) or leucine (L); and

F is phenylalanine and W is tryptophan,

and inhibits the binding of said DM2 protein to a p53 protein, in admixure with at least one pharmaceutically acceptable carrier.

REMARKS/ARGUMENTS

Prior to the present amendment, claims 1-11 and 13-27 were pending in this application. Claims 1-11 and 13-26 were rejected in an Office Action mailed on March 13, 2001. Claim 27 was added concurrently with the filing of a Request for Continued Examination. Original claims